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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/898,271	07/02/2001	Wei Shao	514572000100	2236

25225 7590 09/17/2002

MORRISON & FOERSTER LLP
3811 VALLEY CENTRE DRIVE
SUITE 500
SAN DIEGO, CA 92130-2332

EXAMINER	
FORMAN, BETTY J	
ART UNIT	PAPER NUMBER
1634	9

DATE MAILED: 09/17/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/898,271	SHAO ET AL.	
	Examiner	Art Unit	
	BJ Forman	1634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 June 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-54* is/are pending in the application.

4a) Of the above claim(s) *48-54* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-47* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *8* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I, claims 1-47, filed 27 June 2002 in Paper No. 7 is acknowledged. Claims 48-54 are withdrawn from further consideration.

Claims 1-47 are discussed below.

Information Disclosure Statement

2. The references listed on the 1449 received 11 July 2002 in Paper No. 8 have been reviewed and considered. Additionally, the International Search Report submitted with Paper No. 8 has been reviewed.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 3, 9, 21, 22, 25 and 34-38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. Claim 3 is indefinite for the recitation "wherein the silicon is ....." because the recitation lacks proper antecedent basis in Claim 2. It is suggested that Claim 3 be amended to provide proper antecedent basis e.g. after "wherein" insert "the substrate is silicon and".

b. Claim 9 is indefinite for the recitation "wherein the number of micro-locations and distance among the microlocations correspond to a standard microtiter plate" because "among"

and "correspond" are both non-specific relational terms. Therefore the relationship between the microlocations and the microtitre plate is undefined. It is suggested that Claim 9 be amended to define the relationship e.g. replace "among the" with "between each" and replace "correspond to" with "is the same as".

c. Claim 21 is indefinite for the recitation "wherein at least one of the wells is ....." because the recitation lacks proper antecedent basis in Claim 10. It is suggested that Claim 21 be amended to provide proper antecedent basis e.g. after "wherein" insert "the microlocations are wells and ".

d. Claims 22 and 25 are indefinite in Claim 22 for the recitation "wherein all of the wells is ....." because the recitation lacks proper antecedent basis in Claim 10. It is suggested that Claim 22 be amended to provide proper antecedent basis e.g. after "wherein" insert "the microlocations are wells and ".

e. Claim 34 is indefinite for the recitation "wherein the cell is ....." because the recitation lacks proper antecedent basis in Claim 33. It is suggested that Claim 34 be amended to provide proper antecedent basis e.g. after "wherein" insert "the moiety is a cell and".

f. Claim 35 is indefinite for the recitation "wherein the cellular organelle is ....." because the recitation lacks proper antecedent basis in Claim 33. It is suggested that Claim 35 be amended to provide proper antecedent basis e.g. after "wherein" insert "the moiety is a cellular organelle and".

g. Claim 36 is indefinite for the recitation "wherein the molecule is ....." because the recitation lacks proper antecedent basis in Claim 33. It is suggested that Claim 36 be amended to provide proper antecedent basis e.g. after "wherein" insert "the moiety is a molecule and".

h. Claim 37 is indefinite for the recitation "wherein the inorganic molecule is ....." because the recitation lacks proper antecedent basis in Claim 36. It is suggested that Claim

37 be amended to provide proper antecedent basis e.g. after "wherein" insert "the molecule is an inorganic molecule and".

i. Claim 38 is indefinite for the recitation "wherein the organic molecule is ....." because the recitation lacks proper antecedent basis in Claim 36. It is suggested that Claim 38 be amended to provide proper antecedent basis e.g. after "wherein" insert "the molecule is an organic molecule and".

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in-
> (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or
> (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

6. Claims 1-18, 26-33, 36, 38-41, 46 and 47 are rejected under 35 U.S.C. 102(b) as being anticipated by Rava et al U.S. Patent No. 5,545,531, issued 13 August 1996).

Regarding Claim 1, Rava et al disclose an integrated device comprising a substrate comprising a plurality of distinct micro-locations and a plurality of microchips wherein the number of micro-locations equals the number of said microarrays chips (Column 8, lines 1-27 and Fig. 4-6).

Regarding Claim 2, Rava et al disclose the device wherein the substrate comprises silicon, glass, plastic, ceramic, polymer or composite thereof (Column 9, lines 34-44).

Regarding Claim 3, Rava et al disclose the device wherein the substrate is silicon dioxide or silicon nitride (Column 9, lines 36-38).

Regarding Claim 4, Rava et al disclose the device wherein the substrate comprise a surface that is hydrophobic or hydrophilic (Column 8, lines 28-39).

Regarding Claim 5, Rava et al disclose the device wherein the substrate comprises a surface that is porous (e.g. membrane, glasses, resin) or non-porous (e.g. carbons, metals plastics)(Column 9, lines 34-50).

Regarding Claim 6, Rava et al disclose the device wherein the microarray chips are fabricated on the substrate (Column 9, lines 10-27).

Regarding Claim 7, Rava et al disclose the device which comprises (12)n number of micro-locations wherein n is an integer that is at least 1 (Column 8, lines 40-49).

Regarding Claim 8, Rava et al disclose the device wherein the microlocations are evenly distributed on the substrate (Column 8, lines 40-49 and Fig. 4-6).

Regarding Claim 9, Rava et al disclose the device wherein the number of micro-locations and distance among the microlocations correspond to a standard microtiter plate (Column 8, lines 40-49).

Regarding Claim 10, Rava et al disclose the device wherein the microlocations are in a well format (Column 8, lines 40-49 and Fig. 4-6).

Regarding Claim 11, Rava et al disclose the device of Claim 10 which comprises (12)n number of micro-locations wherein n is an integer that is at least 1 (Column 8, lines 40-49).

Regarding Claim 12, Rava et al disclose the device of Claim 10 which comprises 96 wells (Column 8, lines 40-49).

Regarding Claim 13, Rava et al disclose the device of Claim 10 wherein the wells have a geometry selected from circle, oval, square, rectangle i.e. general size and shape of a microtiter plates (Column 8, lines 40-49).

Regarding Claim 14, Rava et al disclose the device of Claim 10 wherein the wells have identical shapes (Column 8, lines 40-49).

Regarding Claim 15, Rava et al disclose the device wherein at least one of the microlocations is in fluid contact with a fluid source i.e. fluid handling instruments (Column 7, lines 30-42).

Regarding Claim 16, Rava et al disclose the device wherein all of the microlocations are in fluid contact with a fluid source i.e. fluid handling instruments (Column 7, lines 30-42).

Regarding Claim 17, Rava et al disclose the device wherein the microlocations are in fluid contact with each other i.e. upon separation of the body from the wafer, the microlocations are in fluid contact with each other (Column 8, lines 1-21 and Fig. 4).

Regarding Claim 18, Rava et al disclose the device wherein the microlocations are in fluid contact with each other i.e. upon separation of the body from the wafer, the microlocations are in fluid contact with each other (Column 8, lines 1-21 and Fig. 4).

Regarding Claim 26, Rava et al disclose the device wherein each of the microlocations comprises a microarray chip (Column 8, lines 22-27 and Fig. 6).

Regarding Claim 27, Rava et al disclose the device wherein the microarray chips have identical densities i.e. each have the same array of probes (Column 8, lines 61-67).

Regarding Claim 28, Rava et al disclose the device wherein the microarray chips have a density of (100)n spots/cm^2 wherein n is an integer of at least 1 (Column 9, lines 21-27).

Regarding Claim 29, Rava et al disclose the device wherein a microarray chip has a density that is less than or equal to 400 spots/cm^2 i.e. 10/0.25mm^2 (Column 9, lines 21-27).

Regarding Claim 30, Rava et al disclose the device wherein the microarray chips have a density that is less than or equal to 400 spots/cm^2 i.e. 10/0.25mm^2 (Column 9, lines 21-27).

Regarding Claim 31, Rava et al disclose the device wherein at least one chip has attached thereto a plurality of moieties i.e. probes (Column 4, lines 1-12).

Regarding Claim 32, Rava et al disclose the device of Claim 31 wherein the chips has attached thereto a plurality of moieties facing up (Column 9, line 53-Column 10,line 15 and Fig. 5, 6, & 8).

Regarding Claim 33, Rava et al disclose the device of Claim 31 wherein the moieties is selected from the group consisting of a cell, a cellular organelle, a virus, and a molecule (Column 3, lines 39-66 and Column 4, lines 1-12).

Regarding Claim 36, Rava et al disclose the device of Claim 33 wherein the molecule is an organic molecule i.e. probe (Column 3, lines 39-48 and Column 4, lines 1-12).

Regarding Claim 38, Rava et al disclose the device of Claim 36 wherein the organic molecule is selected from the group consisting of an amino acid, a peptide, a protein, a nucleoside, a nucleotide, an oligonucleotide, a nucleic acid, a monosaccharide, an oligosaccharide a carbohydrate and a lipid (Column 3, lines 39-48 and Column 4, lines 1-12).

Regarding Claim 39, Rava et al disclose the device wherein at least two of the chips have attached thereto a plurality of moieties (Column 4, lines 1-12).

Regarding Claim 40, Rava et al disclose the device wherein the chips have attached thereto the same type of moieties i.e. probes (Column 4, lines 1-12 and Column 10, lines 32-57).

Regarding Claim 41, Rava et al disclose the device wherein each of the microarray chips have attached thereto a plurality of moieties (Column 4, lines 1-12 and Column 10, lines 32-57).

Regarding Claim 46, Rava et al disclose the device wherein the substrate is a unitary unit i.e. a wafer comprising a plurality of arrays (Column 8, lines 1-5 and Fig. 5).

Regarding Claim 47, Rava et al disclose the device wherein the substrate is an assembled unit which can be disassembled into at least two parts i.e. a body and a wafer held together via e.g. vacuum, suction and/or weight of the body (Column 8, lines 16-21).

7. Claims 1-6, 8, 10, 13-22, 26-27, 31-33, 36, 38-41, 46 and 47 are rejected under 35 U.S.C. 102(e) as being anticipated by Zhou et al (U.S. Patent No. 6,355,491 B1, filed 17 September 1999).

Regarding Claim 1, Zhou et al disclose an integrated device comprising a substrate comprising a plurality of distinct micro-locations and a plurality of microchips wherein the number of micro-locations equals the number of said microarrays chips (Column 6, line 53-Column 7, line 24).

Regarding Claim 2, Zhou et al disclose the device wherein the substrate comprises silicon (Column 11, lines 40-60).

Regarding Claim 3, Zhou et al disclose the device wherein the substrate is silicon dioxide or silicon nitride (Column 11, lines 40-60).

Regarding Claim 4, Zhou et al disclose the device wherein the substrate comprise a surface that is hydrophobic or hydrophilic (Column 10, line 64-Column 11, line 5).

Regarding Claim 5, Zhou et al disclose the device wherein the substrate comprises a surface that is porous or non-porous (Column 10, line 64-Column 11, line 5).

Regarding Claim 6, Zhou et al disclose the device wherein the microarray chips are fabricated on the substrate (Column 15, lines 18-65).

Regarding Claim 8, Zhou et al disclose the device wherein the microlocations are evenly distributed on the substrate (Column 9, lines 36-37 and Fig. 1).

Regarding Claim 10, Zhou et al disclose the device wherein the microlocations are in a well format or thermally insulated flat surface (Column 11, lines 25-60 and Fig. 3&4).

Regarding Claim 13, Zhou et al disclose the device of Claim 10 wherein the wells have a geometry selected from circle, oval, square, rectangle i.e. general size and shape of a microtiter plates (Column 11, lines 25-60 and Fig. 3&4).

Regarding Claim 14, Zhou et al disclose the device of Claim 10 wherein the wells have identical shapes (Column 11, lines 25-60 and Fig. 3 & 4).

Regarding Claim 15, Zhou et al disclose the device wherein at least one of the microlocations is in fluid contact with a fluid source (Column 20, lines 3-14 and Fig. 12 #46).

Regarding Claim 16, Zhou et al disclose the device wherein all of the microlocations are in fluid contact with a fluid source i.e. via the liquid chamber (Column 20, lines 3-14; Column 20, lines 42-50 and Fig. 12 #46).

Regarding Claim 17, Zhou et al disclose the device wherein the microlocations are in fluid contact with each other i.e. via the liquid chamber (Column 20, lines 3-14; Column 20, lines 42-50 and Fig. 12 #46).

Regarding Claim 18, Zhou et al disclose the device wherein the microlocations are in fluid contact with each other i.e. via the liquid chamber (Column 20, lines 3-14; Column 20, lines 42-50 and Fig. 12 #46).

Regarding Claim 19, Zhou et al disclose the device wherein the microlocations are thermally insulated (Column 6, lines 40-52).

Regarding Claim 20, Zhou et al disclose the device wherein the microlocations are thermally insulated (Column 6, lines 40-52).

Regarding Claim 21, Zhou et al disclose the device wherein the microlocations are wells which are thermally insulated (Column 6, lines 40-52 and Fig. 3 & 4).

Regarding Claim 22, Zhou et al disclose the device wherein the microlocations are wells which are thermally insulated (Column 6, lines 40-52 and Fig. 3 & 4).

Regarding Claim 26, Zhou et al disclose the device wherein each of the microlocations comprises a microarray chip (Column 20, lines 4-28).

Regarding Claim 27, Zhou et al disclose the device wherein the microarray chips have identical densities i.e. each have the same array of probes (Column 20, lines 4-28).

Regarding Claim 31, Zhou et al disclose the device wherein at least one chip has attached thereto a plurality of moieties i.e. probes (Column 20, lines 4-28).

Regarding Claim 32, Zhou et al disclose the device of Claim 31 wherein the chips has attached thereto a plurality of moieties facing up (Column 20, lines 4-28 and Fig. 22 & 23).

Regarding Claim 33, Zhou et al disclose the device of Claim 31 wherein the moieties is a molecule (Column 20, lines 4-28).

Regarding Claim 36, Zhou et al disclose the device of Claim 33 wherein the molecule is an organic molecule (Column 20, lines 4-28).

Regarding Claim 38, Zhou et al disclose the device of Claim 36 wherein the organic molecule is selected from the group consisting of an amino acid, a peptide, a protein, a nucleoside, a nucleotide, an oligonucleotide, a nucleic acid, a monosaccharide, an oligosaccharide a carbohydrate and a lipid (Column 5,lines 30-47).

Regarding Claim 39, Zhou et al disclose the device wherein at least two of the chips have attached thereto a plurality of moieties (Column 20, lines 4-28).

Regarding Claim 40, Zhou et al disclose the device wherein the chips have attached thereto the same type of moieties i.e. probes (Column 20, lines 4-28).

Regarding Claim 41, Zhou et al disclose the device wherein each of the microarray chips have attached thereto a plurality of moieties (Column 20, lines 4-28).

Regarding Claim 46, Zhou et al disclose the device wherein the substrate is a unitary unit (Column 11, lines 25-40 and Fig. 3).

Regarding Claim 47, Zhou et al disclose the device wherein the substrate is an assembled unit which can be disassembled into at least two parts (Column 8, lines 16-21 and Fig. 12).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 19-22, 34, 35, 37 and 42-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rava et al (U.S. Patent No. 5,545,531, issued 13 August 1996) in view of Yasuda et al (U.S. Patent No. 6,093,370, filed 10 June 1999).

Regarding Claims 19 & 20, Rava et al teach an integrated device comprising a substrate comprising a plurality of distinct micro-locations and a plurality of microchips wherein the number of micro-locations equals the number of said microarrays chips (Column 8, lines 1-27 and Fig. 4-6) wherein the microlocations are isolated from each other (Column 8, lines 1-39) but they do not specifically teach the microlocations are thermally isolated. However, thermally isolated microlocations were well known in the art at the time the claimed invention was made as taught by Yasuda et al. Specifically, Yasuda et al a similar integrated device comprising a substrate comprising a plurality of distinct micro-locations and a plurality of microchips wherein the number of micro-locations equals the number of said microarrays chips (Column 10, line 56-Column 12, line 61 and Fig. 10-15) wherein the microlocations are on thermally insulated by placement on the thermally insulating substrate (Column 11, lines

43-50 and Fig. 10 #132) whereby the temperature of the individual microlocations is controlled (Column 11, lines 43-62). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the thermal insulation of Yasuda et al to the substrate of Rava to thereby control the temperature of each microlocation independently for the expected benefits of exposing each microlocation to a desired temperature. For example, Rava et al teaches a 96 microlocation device wherein each microlocation is used for one of several different tests (Column 8, lines 61-67). One skilled in the art would have been motivated to thermally insulate the microlocations to thereby optimize thermal conditions for each microlocation based on the test being performed thereon.

Regarding Claims 21 and 22, Rava et al disclose the device wherein the microlocations are in a well format and on a flat surface of the wafer (Column 8, lines 40-49 and Fig. 4-6) wherein the microlocations are isolated from each other (Column 8, lines 1-39) but they do not specifically teach the microlocations are thermally isolated. However, thermally isolated microlocations were well known in the art at the time the claimed invention was made as taught by Yasuda et al. Specifically, Yasuda et al a similar integrated device comprising a substrate comprising a plurality of distinct micro-locations and a plurality of microchips wherein the number of micro-locations equals the number of said microarrays chips (Column 10, line 56-Column 12, line 61 and Fig. 10-15) wherein the microlocations are on thermally insulated by placement on the thermally insulating substrate (Column 11, lines 43-50 and Fig. 10 #132) whereby the temperature of the individual microlocations is controlled (Column 11, lines 43-62). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the thermal insulation of Yasuda et al to the substrate of Rava to thereby control the temperature of each microlocation independently for the expected benefits of exposing each microlocation to a desired temperature. For example, Rava et al teaches a 96 microlocation device wherein each microlocation is used for one of several different tests (Column 8, lines 61-67). One skilled in the art would have been motivated to

thermally insulate the microlocations to thereby optimize thermal conditions for each microlocation based on the test being performed thereon.

Regarding Claim 34, Rava et al teach the device of Claim 33 wherein the moiety is a cell (Column 3, lines 39-67 and Column 4, lines 1-12) but they do not teach a specific cell type. However, Yasuda et al teach the similar device wherein the cell is an animal cell (Column 20, line s14-63). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the animal cell teaching of Yasuda et al to the generic cells of Rava et al and to attach animal cells to the microlocations to thereby fractionate polynucleotides directly from the cells for the obvious benefits of analyzing cell polynucleotides without the lysis step as taught by Yasuda et al (Column 20, lines 13-17).

Regarding Claim 35, Rava et al teach the device of Claim 33 wherein the moiety is a cellular organelle (Column 3, lines 39-67 and Column 4, lines 1-12) but they do not teach a specific organelle. However, Yasuda et al teach the similar device wherein the cellular organelle is a cell membrane (Column 20, line s14-63). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the cellular membrane teaching of Yasuda et al to other cell membranes (e.g. nuclei, mictochondrial and ER) to the teaching of Rava et al and to attach organelle membranes to the microlocations to thereby fractionate polynucleotides directly from the organelles for the obvious benefits of analyzing organelle polynucleotides without a lysis step as taught by Yasuda et al (Column 20, lines 13-17).

Regarding Claim 37, Rava et al teach the device of Claim 33 wherein the molecule is an organic molecule or a drug (Column 3, lines 39-67 and Column 4, lines 1-12) but they do not specifically teach the molecule is an inorganic molecules. However, Yasuda et al teach the similar device wherein moieties are attached to microlocations and wherein the moieties are inorganic molecules i.e. photoabsorbing particles (Column 8, lines 1-15 and Fig. 4 #23). It would have been obvious to one of ordinary skill in the art at the time the claimed invention

was made to apply the photoabsorbing particles of Yasuda et al to the device of Rava et al and to attach the particles to the substrate thereby providing means for localized heating for the obvious benefits of controlling heat locally thereby controlling environmental conditions for each microlocation independently as taught by Yasuda et al (Column 8, lines 16-31).

Regarding Claims 42-45, Rava et al teach their device is useful for hybridization reactions (Column 7, lines 43-55) but they are silent regarding controlling temperature of the microlocations. However, heating and controlling temperatures during hybridization on microlocations was well known in the art at the time the claimed invention was made as taught by Yasuda et al. Additionally, Yasuda et al teach heating and controlling temperatures at each microlocation individually permits selective extraction and capture of hybridized targets (Column 2, lines 21-30). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the microlocation temperature controller of Yasuda et al wherein each microlocation comprises a controller for individual control of each microlocation wherein the temperature controller is selected from resistive heater, semiconductor temperature controller and infrared heater (Column 11, lines 43-62; Column 12, lines 49-67; and Column 19, lines 5-24) to the hybridization substrate of Rava et al for the obvious benefits of selective extraction and capture of hybridized targets as taught by Yasuda et al (Column 2, lines 21-30).

10. Claims 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rava et al (U.S. Patent No. 5,545,531, issued 13 August 1996) as applied to Claim 19 above and further in view of Schembri et al (U.S. Patent No. 6,258,593 filed 30 June 1999).

Regarding Claims 23-25, Rava et al disclose an integrated device comprising a substrate comprising a plurality of distinct micro-locations and a plurality of microchips

wherein the number of micro-locations equals the number of said microarrays chips (Column 8, lines 1-27 and Fig. 4-6) and Yasuda et al a similar integrated device comprising a substrate comprising a plurality of distinct micro-locations and a plurality of microchips wherein the number of micro-locations equals the number of said microarrays chips (Column 10, line 56-Column 12, line 61 and Fig. 10-15) wherein the microlocations are on thermally insulated by placement on the thermally insulating substrate (Column 11, lines 43-50 and Fig. 10 #132) but Rava et al and Yasuda et al do not specifically teach the microlocations are thermally insulated by inert gas (Claim 23) wherein the inert gas is air (Claim 24) and wherein the insulted air is contained between the walls of adjacent wells. However, Schembri et al teach a similar device wherein the microlocations are thermally insulated by air between the walls of adjacent wells (Fig. 1-3). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the insulation of Schembri et al to the space between the wells of Rava et al and Yasuda et al to thereby insulate the wells from each other for the obvious benefits of maintaining environmental control of each individual microlocation. One skilled in the art would have been motivated to thermally insulate the microlocations to thereby optimize thermal conditions for each microlocation based on the test being performed thereon.

Double Patenting

11. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

12. Claims 1-7, 8, 10, 13-22, 26-27, 31-33, 36, 38-41, 46 and 47 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-40 of U.S. Patent No. 6,355,491. Although the conflicting claims are not identical, they are not patentably distinct from each other because both sets of claims are drawn to a microarray device comprising a substrate having a plurality of microlocation and a plurality of micorarray chips. The claim sets differ only in the terminology used to describe the components of the device and the arrangement of the component limitations within the claims. For example, the instant claims recite microarray chips a substrate comprising silicon, having a porous or non-porous surface, having microlocations having a plurality of moieties attached thereto. The patent claims recite electromagnetic chip which is defined in the specification as an array on a substrate comprising silicon, having a porous or non-porous surface, having microlocations having a plurality of moieties attached thereto (Column 9, line 31-Column 10, line 26). Therefore, the patent claims an electromagnetic chip which is a species of the instantly claimed device.

The courts have stated that a genus is obvious in view of the teaching of a species see Slayter, 276 F.2d 408, 411, 125 USPQ 345, 347 (CCPA 1960); and In re Gosteli, 872 F.2d 1008, 10 USPQ2d 1614 (Fed. Cir. 1989). Therefore the instantly claimed device comprising a substrate and plurality of microarray chips (i.e. genus) is obvious in view of the patent electromagnetic chip (i.e. species).

13. Claims 1-47 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-139 of U.S. Patent No. 6,403,367. Although the conflicting claims are not identical, they are not patentably distinct from each other because both sets of claims are drawn to a microarray device comprising a substrate having a plurality of microlocation and a plurality of micorarray chips. The claim sets differ only in the terminology used to describe the components of the device and the arrangement of the component limitations within the claims. For example, the instant claims recite microarray chips a substrate comprising silicon, having a porous or non-porous surface, having microlocations having a plurality of moieties attached thereto. The patent claims recite addressable electrodes which is defined in the specification as a microarray on a substrate comprising silicon, having a porous or non-porous surface, having microlocations having a plurality of moieties attached thereto (Column 10, line 13-Column 11, line 36). Therefore, the patent claims a system comprising addressable electrodes which is a species of the instantly claimed device. Additionally, the instant claims recite a plurality of microarrays on the substrate. While the patent claims recite a single microarray. However, the courts have stated that a mere duplication of parts has no patentable significance unless a new and unexpected result is produced In re Harza, 274 F.2d 669, 124 USPQ 378 (CCPA 1960) (see MPEP 2144.04 VI B). Therefore the instantly claimed device comprising a substrate and plurality of microarray chips (i.e. genus) is obvious in view of the patent system comprising addressable electrodes (i.e. species).

Conclusion

14. No claim is allowed.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BJ Forman whose telephone number is (703) 306-5878. The examiner can normally be reached on 6:30 TO 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Jones can be reached on (703) 308-1152. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-4242 for regular communications and (703) 308-8724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

BJ Forman, Ph.D.
Patent Examiner
Art Unit: 1634
September 12, 2002